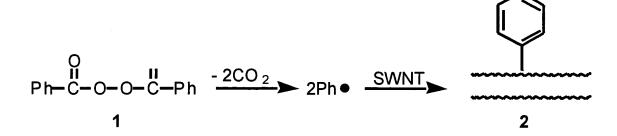
Title: Method for Functionalizing Carbon Nanotubes
Utilizing Peroxides
Inventor: Khabashesku, et al.
Serial No.: To Be Assigned
Docket No.: 11321-P056US
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Figure 1



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Figure 2

4b.
$$R = -(CH_2)_3CH_3$$

4g.
$$R = -(CH_2)_3 - O - THP$$

4i. R= -(CH₂CH₂O)_nCH₂CH₂CH₂CH₃ (n
$$\approx$$
 3)

4j.
$$R = -CH_2C(CH_3)_3$$

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Figure 3

Fe⁺² + H₂O₂
$$\longrightarrow$$
 HO• + HO• + Fe⁺³

H₃C-S-CH₃ \longrightarrow OH

• CH₃

SWNT

5a

Figure 4

$$H_3C-S-CH_3$$
 Fe^{+2} CH_3 R CH_3 R

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Figure 5

$$R-S-R'$$
 Fe^{+2} $R + R$

5a. R, R'= -CH₃

5b. R, R'= -CH₂CH₂CH₃

5c. R, R'= -CH(CH₃)₂

5d. R, R'= -CH₂CH₂CH₂CH₃

5e. R, R'= -CH(CH₃)CH₂CH₃

5f. R, R'= -Ph

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Figure 6

Figure 7

 $SWNT\text{-}(CH_2CH_2CONHCH_2CH_2NH_2)_x$

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Figure 8

7b

SWNT —
$$(CH_2CH_2CONH$$
 — CH_2 — $NH_2)_x$

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Figure 9

SWNT-CH₂CH₂COOH

SOCl₂
SWNT-CH₂CH₂COCl

Tb

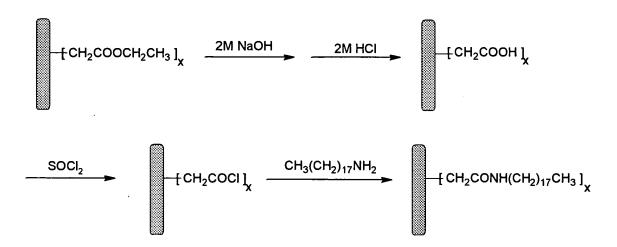
$$H_3C$$
SWNT-CH₂CH₂CH₂CONH
$$C_2H_5$$
NH₂

$$H_3C$$

$$C_2H_5$$
NH₂

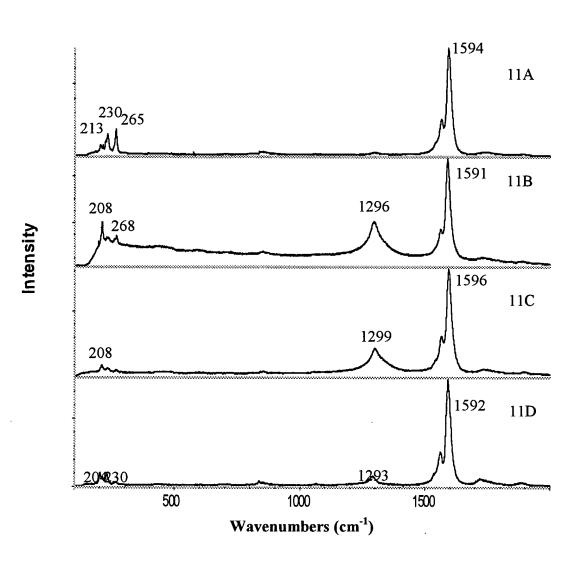
Title: Method For Functionalizing Carbon Nanotubes Utilizing Peroxides Inventor: Khabashesku, et al. Serial No.: To Be Assigned Docket No.: 11321-P056US Sheet 8 of 12

Figure 10



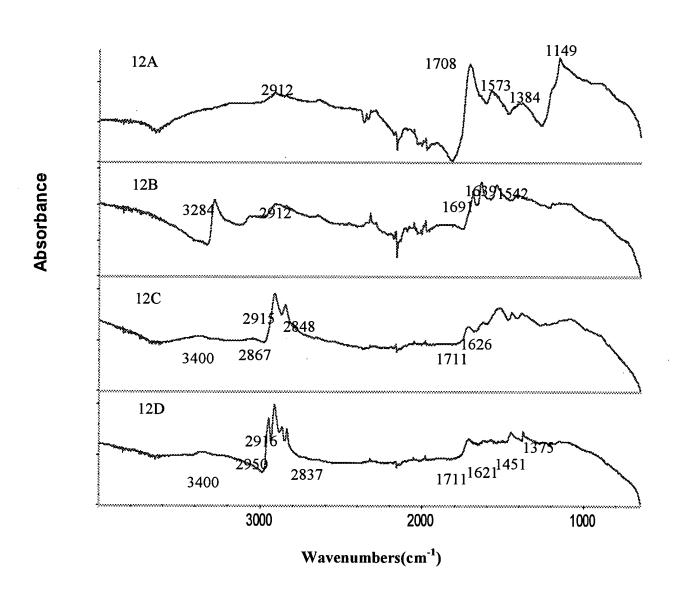
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Figure 11



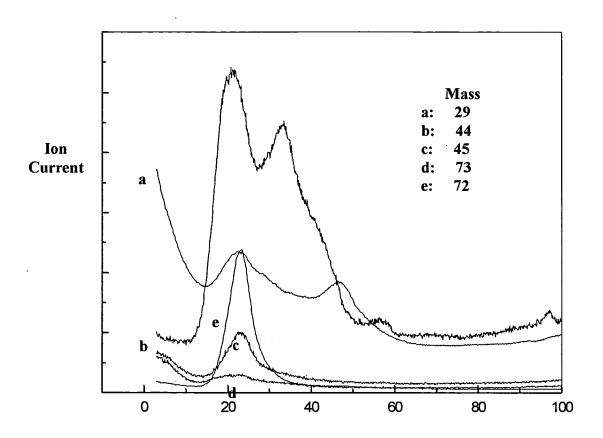
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Figure 12



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Figure 13

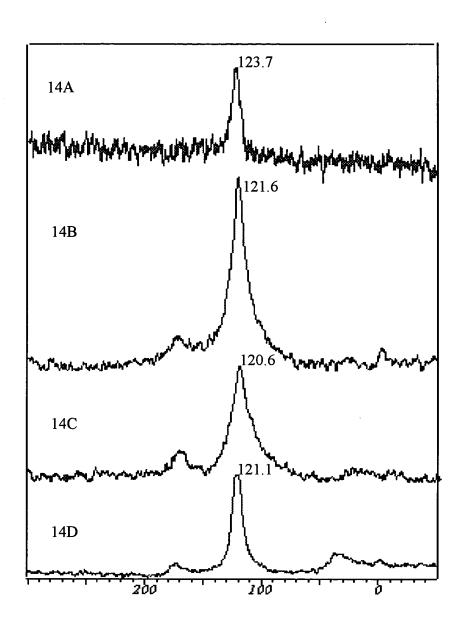


Time (minute)

Title: Method For Functionalizing Carbon Nanotubes

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Figure 14



Chemical Shift (ppm)